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Mr. Randy Matty, P.E.  
Air Management Engineer  
Wisconsin Department of Natural Resources  
2984 Shawano Ave.  
Green Bay, WI 54313-6727

October 6, 2014

RE: Temporary Exemption from Opacity and Particulate Emission Limits on Boiler B09 Test Report-2

Dear Mr. Matty:

Manitowoc Public Utilities requested a temporary exemption from opacity and particulate emission limits on Boiler B09 to perform diagnostic stack testing. The purpose of the diagnostic testing was to test the ash injection equipment that would "spike" the boiler exhaust after the baghouse. This work is in preparation for completing the Performance Specification 11, 40 CFR Part 60, Appendix B correlation test for a new particulate matter monitor to be installed this fall. Correlation testing requires the emissions to be elevated near the particulate and opacity emission limits for the boiler. The WDNR approved the exemption request (copy attached) and the diagnostic test report results are as follows:

**Method 5 diagnostic test with ash injection:**

<u>Test Parameters</u>	<b>Run 1</b>	<b>Run 2</b>	<b>Run 3</b>
Date	9/11/2014	9/11/2014	9/11/2014
Start Time	8:11	9:37	10:55
Stop Time	9:14	10:39	12:00
<u>Gas Conditions</u>			
Temperature (°F)	315	316	316
Volumetric Flow Rate (acfm)	195,300	196,800	199,500
Volumetric Flow Rate (scfm)	131,400	132,200	134,000
Volumetric Flow Rate (dscfm)	123,400	124,200	125,900
Carbon Dioxide (% dry)	12.1	12.6	12.5
Oxygen (% dry)	6.5	6.3	6.3
Moisture (%)	6.12	6.13	6.06

**Particulate Results**

Concentration (grains/dscf)	0.0133	0.0296	0.0195
Emission Rate, Fc (lb/mmBtu)	0.0269	0.0572	0.0382
Emission Rate (lb/hr)	14.1	31.5	21.0
Opacity Range:	1.1 to 1.7	2.9 to 4.3	2.8 to 3.8

**Applicable limits:**

- 0.03 lb/mmBtu for PM
- 20 percent for opacity (6-minute average)

**Conclusion:** No exceedance of opacity limits occurred during the diagnostic test procedures. PM emissions exceeded the limit during two of the three the diagnostic test procedures. We believe we now have enough data to allow us to spike the boiler exhaust to the levels required during the correlation testing. MPU will again request a temporary exemption from opacity and particulate emission limits during the correlation stack testing procedure due to variability in the spiking process.

The delivery of the PM monitor was delayed and we are now planning for the installation to occur late 2014 or early 2015.

If you have any questions regarding the diagnostic stack testing, or require additional information, please contact me.

Sincerely,



Thomas E. Reed, P.E.  
Environmental Engineer  
Manitowoc Public Utilities  
Phone: 920-686-4384  
Cell: 920-973-7134  
Fax: 920-686-4348

Cc: Red Jones – MPU  
Don Duenkel – MPU  
Jerry Ahlswede – MPU  
Brian Fassbender – MPU  
Tim Harding – MPU  
Scott Karbon – MPU  
Adam Becker – MPU

Source: Y:\Group File Folders\Reed\1-Tom Reed\Air\stack testing\2014 B28 & B09 Test\PM CEMS Testing\WDNR stack test Temporary Exemption for Opacity and PM Test Report-2.docx



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor  
Cathy Stepp, Secretary

West Central Region Air Program  
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August 29, 2014

Thomas E. Reed, P.E.  
Environmental Engineer  
Manitowoc Public Utilities  
1303 South 8<sup>th</sup> Street, P. O. Box 1090  
Manitowoc, WI 54221-1090

FID: 436035930

Subject: Temporary Exception from Opacity and Particulate Emission Limits

Dear Mr. Reed:

We have received your plan (dated 08/27/14) to perform diagnostic testing on boiler B09 for preparation to complete Performance Specification 11, 40 CFR Part 60, Appendix B, correlation testing on a new particulate matter monitor. You have indicated that the diagnostic testing will require the emissions to be elevated near the particulate and opacity emission limits for the B09 boiler. As part of your plan, you request that the department approve a temporary exception from opacity and particulate emission limits during the diagnostic test periods.

We have reviewed your proposed testing plan and request for an emission limit exception and we approve the exception and schedule as proposed. This emissions exception is granted in accordance with section NR 436.03(2)(b), Wis. Adm. Code, with the following provisions:

1. The exempted or exceptional emissions are only those that may occur during the particulate matter diagnostic test period.
2. The diagnostic test period may begin on September 8 and end on September 12, 2014.
3. If the particulate matter correlation test period is to change from what is proposed, that you notify me prior to its change. You may leave a voice message at 920-662-5158 or send me an email.
4. That all exceedances of emission limits be reported to my office within one business day.
5. That a final test report, including the total particulate matter and opacity data collected during the diagnostic test period, be provided to the department within 60 days of the test conclusion.

Please call me at 920-662-5158 if you have questions.

Sincerely,

Randy Matty  
Air Quality Engineer

e-copy: Imelda Hofmeister, NER  
Andy Seeber, AM/7